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THE RAINFALL OF OCTOBER, 1897.

THE rainfall of October, 1897, has been so exceptionally small that we feel justified in devoting a considerable amount of space to a discussion of the details.

In table I. we have tabulated all records received up to date which show a total fall for the month of less than an inch. These number 61 out of a total of rather under 240, or fully one-quarter.

It will at once be seen that these stations are distributed over the S., S.E., E., and N.E. of England, stretching west as far as Torquay, and northwards to the borders of Yorkshire. Of course the adoption of an arbitrary limit of an inch is open to the objection that it does not represent a uniform ratio to the average, but on the other hand it represents a uniform quantity of water for the supply of springs and streams.

The main results of the table will perhaps be most readily grasped by summing the values for the different counties, as follows :—

			in.
Middlesex	5	stations giving a mean of	·73
Surrey	4	,, ,, ,,	·60
Kent	11	,, ,, ,,	·32
Sussex	10	,, ,, ,,	·34
Hants	6	,, ,, ,,	·49
Berks	1	,, ,, ,,	·70
Herts	3	,, ,, ,,	·69
Essex	5	,, ,, ,,	·51
Suffolk	3	,, ,, ,,	·59
Norfolk	5	,, ,, ,,	·88
Devon	1	,, ,, ,,	·94
Lincoln	3	,, ,, ,,	·82
Notts	2	,, ,, ,,	·98
Derby	2	,, ,, ,,	·96

It must be borne in mind that these figures do not represent the mean rainfall of the month over the different counties, but they probably indicate very fairly the relative intensity of the drought, and accepting the results we find the lowest values for the seaboard counties in the extreme S.E., Kent ·32 in., Sussex ·34 in., Hants ·49 in., Essex ·51 in., Suffolk ·59 in., while Surrey ·60 in. is much above the adjoining coast counties. Similarly Lincoln ·82 in. gives a lower value than Notts ·98 in., and Derby ·96 in., inland.

TABLE I.—*October Rainfalls of less than an inch.*

	Stations.	October, 1897.	Previous driest October.		Duration of Record.	Other Octobers with less than 1·00 in.	
			Amount	Year.		Amount	Year.
		in.	in.		years.	in.	
I.	London, Camden Square	·56	·80	1879	40	·99	1884
,,	Willesden Green, Strode Road	·76	.	...	3		
,,	Muswell Hill	·74	·77	1879	26		
,,	Finchley, Etchingham Park	·69	1·24	1888	13		
,,	Uxbridge, Harefield Park	·91	...	...	7		
II.	Abinger Hall	·72	·85	1879	19		
,,	Farnham, Great Down Seale	·58	...	...	8		
,,	Reigate, Woodhatch Lodge	·52	1·08	1890	18		
,,	Wallington	·58	1·16	1890	14		
,,	Tenterden	·24	·82	1879	34		
,,	Hythe	·33	·68	1866	33		
,,	Folkestone, Cheriton Road	·22	...	...	6		
,,	Tunbridge Wells, Camden Park	·32	1·40	1884	14		
,,	Seven Oaks, Riverhead Vicarage	·24	·58	1884	33	.	
,,	Birchington, Thor	·28	...	...	6		
,,	Sheppey, Leysdown	·20	1·24	1890	13		
,,	Bickley, Elmhurst	·41	..	...	1		
,,	,, The High Field	·37	1·04	1879	20		
,,	Bromley, Widmore Road	·45	...	...	2		
,,	Chislehurst, Southlaund	·44	...	...	4		
,,	Chichester, Westgate	·50	·92	1879	66		
,,	Steyning	·48	1·35	1890	30		
,,	St. Leonard's, The Grove	·07	1·12	1879	21		
,,	Hailsham	·30	·88	1879	25		
,,	Isfield Place	·29	...	...	2		
,,	Uckfield	·38	·77	1879	56		
,,	Lindfield, Wood Knoll	·39	...	...	4		
,,	Crowborough, The Observatory	·36	1·08	1879	27		
,,	East Grinstead, Felbridge Place	·40	...	...	3		
,,	Ticehurst	·20	1·19	1890	15		
,,	Ryde, Thornbrough	·44	1·24	1890	16		
,,	,, St. John's Park	·43	..	...	5		
,,	Emsworth, Redlands	·54	·99	1884	14		
,,	Liss, Lingwood	·64	...	...	6		
,,	Alton, Ashdell	·76	·86	1884	32		
,,	Strathfieldsaye Gardens	·11	...	...	3		
,,	Wantage, Letcombe Regis	·70	1·04	1879	21		
III.	Broxbourne, Stafford House	·60	1·12	1884	18		
,,	Great Berkhampstead, Rosebank	·86	1·15	1888	13		
,,	Hitchin, Wratten	·62	·61	1879	48	·92 ·81 ·97 ·80	1861 1871 1876 1888
IV.	Southend Water Works	·15	·89	1890	17		
,,	Manor Park, Albany Road	·42	...	...	7		
,,	Harlow, Sheering	·77	·85	1879	34	·96	1871
,,	Colchester, Hill House, Lexden	·48	...	..	9		
,,	Saffron Walden, Newport	·71	·64	1879	22	·95	1888
,,	Ipswich, Bishop's Hill	·47	·67	1879	26	·96	1888
,,	Rendlesham Hall	·46	·55	1879	19	·78	1888

TABLE I.—*October Rainfalls of less than an inch (continued).*

STATIONS.	October, 1897.	Previous driest October.		Duration of Record.	Other Octobers with less than 1·00 in.	
		Amount	Years.		Amount	Year.
	in.	in.		years.	in.	
IV. Bury St. Edmunds, Westley	·85	·36	1866	41	·53	1861
					·95	1871
					·81	1876
					·98	1879
,, Harleston, Rushall Vicarage	·69	·91	1879	24		
,, Wymondham	·91	...	...	9		
,, Denver	·88	·55	1888	13		
,, Norwich, Brundall.....	·94	...	...	5		
,, Swaffham.....	·99	1·00	1888	20		
V. Torquay, Cary Green.....	·94	...	...	6		
VII. Grantham, Stainby.....	·84	..	...	9		
,, Boston	·91	·48	1888	31	·71	1879
					·85	1890
,, Horncastle, Hemingby	·70	·67	1888	17		
,, Worksop, Hodsock Priory	·97	·64	1888	23	·84	1879
					·96	1879
,, Hesley Hall [Tickhill]	·99	·54	1888	23	·94	1884
					·86	1890
,, Derby, Midland Railway	·97	·60	1888	15		
,, Duffield.....	·95	...	...	3		

TABLE II.—*Rainfall of October*, 1897, *compared with that of the previous 25 or more Octobers.*

DIVISION AND STATION.	1897.	Average.		1897 Per cent. of average.	Number of previous Octobers with less than	
		Amount.	Years.		1·00 in.	1897.
	in.	in.				
I. Camden Square ...	·56	2·71	40	21	2	0
,, Muswell Hill	·74	3·06	26	24	1	0
II. Tenterden	·24	3·58	34	7	1	0
,, Hythe	·33	4·19	33	8	1	0
,, Seven Oaks	·24	3·52	33	7	1	0
,, Chichester	·50	3·65	44	14	1	0
,, Steyning	·48	4·26	30	11	0	0
,, Hailsham.....	·30	4·06	25	7	1	0
,, Uckfield	·38	4·00	56	9	1	0
,, Crowborough	·36	4·38	27	8	0	0
,, Alton	·76	3·71	32	21	1	0
III. Hitchin.....	·62	2·69	48	23	5	1
IV. Sheering	·77	2·71	34	28	2	0
,, Ipswich.....	·47	2·70	26	17	2	0
,, Westley	·85	2·63	41	32	5	3
VII. Boston	·91	2·57	31	36	3	3
MEAN.....	·53	3·40	35	16	1·7	0·4

TABLE III.—*Relation of the Rainfall of October*, 1897, *to the average*, 1880-89.

STATIONS.	1897.	Per cent. of average 1880-89.	STATIONS.	1897.	Per cent. of average 1880-89.
	in.			in.	
Middlesex—			*Cornwall*—		
Camden Square	·56	19	Probus	1·69	31
Muswell Hill	·74	24	Polapit Tamar	1·50	30
Surrey—			*Gloucester*—		
Abinger Hall	·72	19	Clifton	1·22	34
Reigate	·52	15	Lechlade	1·39	51
Kent—			Stroud	1·56	51
Tenterden	·24	6	Cheltenham	1·48	50
Hythe	·33	7	*Hereford*—		
Sevenoaks	·24	7	Ross	1·84	56
Sussex—			*Shropshire*—		
Chichester	·50	15	Woolstaston	1·10	29
Steyning	·48	11	*Stafford*—		
St. Leonards	·07	2	Cheadle	1·11	32
Hailsham	·30	7	*Worcester*—		
Hants—			Diglis Lock	1·72	61
Ryde	·44	11	Lincombe Lock	1·19	41
Alton	·76	21	*Warwick*—		
Herts—			Coventry	1·81	57
Kensworth	·89	26	*Leicester*—		
Hitchin	·62	20	Rotherby Hall	1·36	44
Buckinghamshire—			*Lincoln*—		
Addington	1·24	40	Boston	·91	29
Oxford—			Bucknall	·70	22
Oxford	1·32	47	*Notts*—		
Banbury	1·64	54	Hodsock Priory	·97	31
Northampton—			Hesley Hall	·99	32
Castle Ashby	1·43	47	*Derby*—		
Sedgebrook	1·41	46	Derby	·97	29
Cambridge—			*Cheshire*—		
Wisbech	1·12	35	Hinderton	1·39	42
Essex—			*Lancashire*—		
Sheering	·77	26	Manchester	1·76	52
Newport	·71	23	Southport	1·87	53
Suffolk—			*York*—		
Ipswich	·47	15	Ribston Hall	1·57	50
Rendlesham	·46	14	Arncliffe	2·97	49
Bury St. Edmunds	·85	26	Ripon	1·72	46
Norfolk—			Hull	1·37	37
Rushall Vicarage	·69	19	*Northumberland*—		
Swaffham	·99	29	Unthank Hall	1·72	48
Wilts—			Newcastle	1·22	39
Alderbury	1·56	48	*Cumberland*—		
Bishops Cannings	1·46	45	Seathwaite	8·72	82
Mildenhall	1·59	49	Keswick	4·34	78
Swindon	1·47	47	*Wales (inc. Monmouth)*—		
Dorset—			Llanfrechfa	1·72	41
Blandford	1·44	34	Cardiff, Ely	1·91	42
Devon—			Llandovery	2·18	44
Holne Vicarage	2·33	33	Haverfordwest	1·96	38
Druid House	2·28	36	Gogerddan	1·81	34
Oakhampton	1·63	28	Nantgwillt	2·17	33
Barnstaple	1·39	27	Llandudno	1·46	43
Lynmouth	1·06	18			

Of the 61 stations included in the table, no fewer than 40 have records extending over periods ranging between ten and sixty years, which gives good evidence for determining how far the returns for 1897 are unparalleled. Of these 40 stations, 31 show a wholly unprecedented value for October, 1897; while the remaining 9 stations show between them 17 precedents distributed over the following years :—

	1861.	1866.	1876.	1879.	1884.	1888.	1890.
	in.	in.	in.	in.	in.	in.	in.
III. Hitchin	...	...	...	·61	...	...	...
IV. Newport	...	...	...	·64	...	...	...
,, Westley	·53	·36	·81	...	...	...	...
,, Denver	...	...	...	...	...	·55	...
VII. Boston	...	...	...	·71	...	·48	·85
,, Hemingby	...	...	...	...	...	·67	...
,, Hodsock	...	...	...	·84	...	·64	...
,, Hesley	...	...	...	·96	·94	·54	·86
,, Derby	...	...	...	...	...	·60	...
Instances each year	1	1	1	5	1	6	2

Eleven out of these 17 precedents come from Div. VII., where the 1897 fall for the 9 stations in table I. averages ·90 in., and where obviously the drought was not intense. On the other hand, the following 9 long records show no October fall smaller than that of 1897.

I. Camden Square	40 years.	II. Steyning	30 years.
II. Tenterden	34 ,,	,, Uckfield	56 ,,
,, Hythe	33 ,,	,, Alton	32 ,,
,, Seven Oaks	33 ,,	IV. Sheering	34 ,,
,, Chichester	66 ,,		

The latter columns of the table show the driest October previously recorded at each station, the period over which each record extends, and all other Octobers in which the fall was less than an inch. These give one of the strongest illustrations of the very exceptional character of the drought, for while there are 27 entries below ·50 in. for October, 1897, there are only two instances for all the other Octobers in the table numbering, wet and dry included, nearly 1,000. Namely, ·36 in. at Bury St. Edmunds in 1866, and ·48 in. at Boston in 1888. It should be mentioned that to avoid burdening the table with unimportant figures the "previous driest" is not given for stations at which the record does not extend over ten years.

Table II. gives a summary of the results for stations at which the records extend over 25 or more years, and in addition the percentage which October, 1897, bears to the average of the whole period, the number of instances of less than an inch of rain in October at each station, and the instances of any other October drier than 1897. It shows that at six stations the 1897 fall is less than 10 per cent. of

the average; and at only three is above 25 per cent. The Kent stations average 7 per cent., and the Sussex stations average 10 per cent.

At only three stations out of the sixteen has the fall been less in any other October than in that of 1897, viz. :—

			in.						in.
Hitchin.....	October,	1897	·62	excelled	in	48	years	by	·61 in 1879
Westley.....	,,	,,	·85	,,	,,	41	,,	,,	·53 ,, 1861 ·36 ,, 1866 ·81 ,, 1876
Boston	,,	,,	·91	,,	,,	31	,,	,,	·71 ,, 1879 ·48 ,, 1888 ·85 ,, 1890

At the first of these stations, Hitchin, in a period of nearly half-a-century, the 1897 fall has been once—shall we say equalled—while at the other two, Westley, near Bury St. Edmunds, and Boston, the 1897 falls are decidedly large, so that the amounts for the six Octobers with smaller falls are not so remarkable as dozens of the 1897 returns, only two of them being below half-an-inch. It would perhaps be difficult to justify the line of means at the bottom of table II., but it is a ready method of getting a gross value, and according to it the 1897 falls average 16 per cent. of the mean of 35 years, and the October fall will be less than an inch once in 21 years, while the 1897 value averages just over half-an-inch.

Table III. gives for 72 stations in England and Wales the rainfall of October, 1897, expressed as a percentage of the average for the month during the ten years 1880-89. It, like table I., emphasizes the fact that the deficiency was greatest in the extreme S.E., and greater on the S. and E. coasts than inland.

Taking the average of the records for each county, Kent heads the list with only 7 per cent. of the average, and Sussex follows with 9 per cent. Hampshire, Surrey and Suffolk show 16, 17 and 18 per cent. respectively. Middlesex 22, Herts 23, Essex 24, and Norfolk 24, complete the list of counties with less than a quarter of the average. Less than one third of the average fall is indicated for Lincoln 26 per cent., Devon 28, Shropshire 29, Derby 29, Cornwall 30, Stafford 32, and Nottingham 32. The counties recording from one-third to half the average are Dorset 34 per cent., Cambridge 35, Bucks 40, Cheshire 42, Leicester 44, Northumberland 44, York 45, Northampton 47, Wilts 47, Gloucester 47, and Oxford 50. Hereford, Worcester, Warwick, and Lancashire show values of from 50 to 60 per cent., while Cumberland foots the list with 80 per cent. A larger number of stations in each county would probably modify to some extent the foregoing values, but if they are plotted on a map it will be seen that they are much more accordant than might reasonably have been expected.

The Welsh stations give remarkably uniform results, ranging only from 33 per cent. of the average at Nantgwillt, Radnorshire, to 44 per cent. at Llandovery, Carmarthenshire, the average for all the stations in the Principality being 39 per cent.

The general distribution over the country will perhaps be most readily indicated by grouping the stations under the divisions used in *British Rainfall*, when we get the following results.

Division	I.	Middlesex	22	per cent.	of the	average	1880–89
,,	II.	South Eastern Counties....	11	,,	,,	,,	,,
,,	III.	South Midland ,, ...	39	,,	,,	,,	,,
,,	IV.	Eastern Counties.....	22	,,	,,	,,	,,
,,	V.	South Western Counties...	36	,,	,,	,,	,,
,,	VI.	West Midland ,, ...	46	,,	,,	,,	,,
,,	VII.	North ,, ,, ...	31	,,	,,	,,	,,
,,	VIII.	,, Western ,, ...	49	,,	,,	,,	,,
,,	IX.	Yorkshire	45	,,	,,	,,	,,
,,	X.	Northern Counties.....	62	,,	,,	,,	,,
,,	XI.	Monmouth and Wales.....	39	,,	,,	,,	,,

Again very accordant values, lowest in the S.E., very small in the E., small along the S., S.W., and N.E. coasts, and increasing N. Westwards, but with rather unduly high values for the west midland counties.

The rapid increase of the 1897 fall, with increased distance from the sea coast already referreed to, is very marked, and is well exhibited by the following :—

Coast Stations.			Inland Stations.	
County.	Station.	Per cent. of aver.	Station.	Per cent. of aver.
Hants.....	Ryde.....	11	Alton.....	21
Suffolk	Rendlesham....	14	Bury St. Edmunds.	26
Devon	Lynmouth.....	18	Oakhampton.....	28
Gloucester	Clifton.....	34	Lechlade.....	51
York.....	Hull.....	37	Arncliffe	49
Northumberland..	Newcastle	39	Unthank Hall	48

In Sussex the difference between Coast and Inland stations is marked by the rapid increase from E. to W.

AUSTRIAN HYDROGRAPHY.*

It is a very strong and remarkable statement to make, but, to the best of our belief, it is true, that no Government Department ever started so nearly perfect an organization as that presided over by K. K. Oberbaurath Ernst Lauda.

Generally, early publications are more or less of an experimenta character; and it is by degrees only that completeness is reached; but Herr Lauda's first volume will rank with, if not surpass, anything that we have ever seen for any country in the world. As for England, we have absolutely nothing to put beside these splendid Austrian volumes.

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* Jahrbuch der K. K. hydrographischen Central-Bureau Jahrgang I.–III., 1893–95. Braumüller, Wien, 1895–97. 3 vols., large 4to, 562, 552, 1330 pages and numerous maps.

Beiträge zur Hydrographie Osterreichs 4to 68 pages, and atlas on the scale of $\frac{1}{750,000}$ (about 12 miles to an inch).

The last being by far the largest of the three annual volumes, and of course giving the latest details as to the organization, we will base our remarks upon it. It consists of fifteen parts issued in a portfolio. The first part is a general introduction, with a map (about 2 ft. by 1½ ft.) on the scale of 35 miles to an inch of the principal river basins, showing also isohyetal lines for each 200 mm. (8 inches) of annual rainfall in the year 1895. It deals exclusively with details of the organization, and gives lists of the localities at which the observations are made. There are 2261 rainfall stations, and 28 additional ones for recording the depth of snow; and there are 872 stations at which the level of the water in the rivers and streams is measured daily.

Parts I. to XIV. deal with the several principal watersheds. Each part is alike in treatment, and, as it might be imagined that Part I.—Das Donau-Gebeit (The Watershed of the Danube)—was exceptionally good, we take Part IV.—Das Drau-Gebiet, or, as Englishmen would call it "The Watershed of the Drave." [*Why* it is not the rule for all countries to accept the local orthography of place-names we know not. To us it seems very absurd to write Vienna when we mean Wien, or Londres when we mean London; but it will be put right some day.]

This Part (IV.) deals with an area of about 12,000 square miles (about twice the size of Wales) which is roughly accordant with the district of Carinthia, has the Carnic Alps for its S.W. boundary, and the towns of Klagenfurt and Graz near its centre.

In this area there are 111 rain gauge stations at the following altitudes above sea level:—

14	between	656	and 1312 ft.	14	between	3281	and 3937 ft.
27	,,	1312	,, 1969 ,,	7	,,	3937	,, 4593 ,,
27	,,	1969	,, 2625 ,,	4	,,	4593	,, 4921 ,,
16	,,	2625	,, 3281 ,,	2	,,	5906	,, 7218 ,,

The level of the water in the rivers was observed at 74 stations; temperature of water and of air at a few of them.

First in the part comes a list of the stations, with the latitude, longtitude, and altitude of each, and the observer's name and profession (mostly clergy or schoolmasters); then follow tables of the daily rainfall at each station, and various analyses, and a carefully prepared summary of them. The wettest station is Raibl (lat. 46° 30°, long. 13° 35 E., altitude 2461 ft.), where the total in 1895 was 90·83 in., which was about 5 inches above its average; but the most remarkable feature was the rain at that station on October 8th and 9th, 1895, viz., 5·91 and 7·37 (*i.e.*, 13·28 inches in two days). The editor throws no doubt upon the record, and we see that at many drier stations the fall was between 5 and 7 inches.

Of course, on turning to the latter portion of the work, where the daily height of the water in the rivers is given, we expected to find this enormous rainfall produce a marked effect; and so we do, rises of 5 to 10 ft. being reported at most stations.

These water levels are given in the same detail as the rainfall, and we are glad to note that many of the observers did not content themselves with their usual daily observation on the day of the flood (generally October 10th), but took extra readings so as to obtain the true maximum.

Lastly we must mention the exquisitely beautiful large-scale shaded rainfall map given in each part.

Although it occurs in another section (Part. IX.), we ought not to omit to mention the enormous rainfall in some parts of Dalmatia; we therefore give it in tabular form.

Place	Crkvice.	Jankov vrh.	Sa. Croce.	Goli vrh.	Jablanica gornja.
Latitude N.	42° 34′	42° 35′	42° 29′	42° 32′	43° 40′
Longtitude E. of Gr.	18° 38′	18° 40′	18° 42′	18° 44′	17° 46′
Altitude	3599 ft.	3343 ft.	558 ft.	4301 ft.	630 ft.
	in.	in.	in.	in.	in.
1895, January	52·09	16·42	16·50	8·35	15·75
February	36·93	21·58	16·38	14·69	10·55
March	17·05	16·73	10·16	6·61	10·35
April	13·82	17·60	11·38	13·15	8·94
May	11·54	15·35	5·63	4·84	7·01
June	3·74	3·78	*(5·59)*	6·06	1·85
July	4·17	4·10	3·58	4·17	3·39
August	·98	·43	·39	·83	2·01
September	·32	1·06	1·42	·51	2·12
October	21·10	(33·34)	16·61	29·61	15·28
November	7·13	4·09	3·66	6·89	5·71
December	39·92	41·07	16·54	9·61	15·43
Total for 1895	208·79	*(175·55)*	*(107·84)*	105·32	98·39
,, ,, 1894	109·34	...	58·27	80·28	52·84
,, ,, 1893	159·26	131·93	80·00	108·39	*(62·37)*

NOTE.—Italic figures indicate results partly observed and partly computed.

It would require weeks of work to justify the expression of an opinion as to the accuracy of the thousands of figures in these volumes, but our impression is that the work is very good. We have noticed only two doubtful entries, both in the first year, 1893. On page 53 the daily rain record for the Schmelz Reservoir at Vienna on January 22nd is 3·2 mm; it probably should be 23·2 mm, as all the other stations near Vienna had between 15 and 27 mm. And on p. 373 of the same volume we think that the river level at Primiero on February 4th should have been −20, not −30; very probably the observer reported −30, but we do not believe it to be correct.

The whole work is so exceptionally good that we can suggest but few directions in which improvement seems desirable. We have seen no reference to the pattern of rain gauge used, to the height of

the funnels above the ground, or to the time of observation either of the rainfall or of the rivers. Details on these points are desirable.

There seems a little vagueness in the reference to average rainfall. The fall in the year 1895 is for several stations compared with the average, but we are not told of what years the average is computed, or whether it is of synchronous years at all stations.

It is perhaps not unreasonable to hope that a Bureau which is doing such splendid current work, and doing it so sumptuously, will before long take up the subject of old observations and give us an authoritative and exhaustive statement as to the rainfall of bygone years, so that we may have the best available information as to the secular variation of the fall of rain in the Austrian Empire.

There is no reference to the volume of water discharged by the rivers, or to the relation between it and the rainfall. Apparently the existing organization could give information of great importance as to the flow from large areas, and we hope that before long it will do so.

REVIEW.

The Great Meteoric Shower of November, by W. F. DENNING, F.R.A.S (Reprinted from The Observatory.) Taylor & Francis, Red Lion Court. 1897, 8vo. 52pp., 1 plate.

ALL who wish to know the history of the great meteor shower which (whatever it may be in the early hours of November 15th and 16th, 1897) will probably be grand on November 14th and 15th, 1898, should obtain this pamphlet.

Mr. Denning is a recognized leader in this class of work, and as such his words carry great weight. We see that on page 31 he says that one observer must have made a mistake when he said that "the largest of the 1866 shower was not twice the apparent brilliancy of Sirius"; but as Mr. Denning quotes without criticism somewhat similar statements by such authorities as Backhouse, Hind, and Baxendell, there is no need for us to do more than shrug our shoulders and leave Mr. Denning to believe in "half the size of the moon" if he likes. Those who saw the shower know that the startling feature was, not the magnitude of the individual meteors, but their great number.

The pamphlet would have been improved by an index or table of contents, and we see no reference to efforts to photograph the area surrounding the radiant, and very little respecting the curious and frequent appearance of end-on meteors, *i.e.*, those directed precisely towards the observer, who sees first a point of light which increases in magnitude, becoming hazy at the edges, and then suddenly dies out; but there is so much in the pamphlet that is useful and interesting that few will go without the best publication on the subject.

INCREASED CLOUDINESS OF MALTA.

To the Editor of the Meteorological Magazine.

SIR,—In the *Meteorological Magazine* for September last (p. 121), touching upon the increased cloudiness of Malta registered during the last five years, you ask whether the change may not be due to a change of observers. The same question occurred to me some time ago, and set me to hunt up our record to see whether the variation in readings was really due to a change in the weather. The result of my search completely vindicated the observers. It is quite true that changes of observer have taken place. Previous to the winter of 1890-91, the Rev. J. Scoles, S.J., took all the observations. Towards the end of 1890 I assisted him, taking the morning observations, whilst he took those in the evening. In September, 1893, the Rev. R. Stevenson, S.J., took all the observations, and has done so ever since. Numerous comparisons shewed that my estimate of cloud agreed with that of the Rev. J. Scoles, and that the Rev. R. Stevenson's agreed with mine. The change then has been one of weather, more or less coincident with a change of observer. The spring and summer months here are characterised by sunny blue skies and very little cloud. Most of our cloudiness occurs in the autumn and winter months. During these latter months, east and southerly winds (warm, with high dew point) bring, almost invariably, overcast skies. A high average dew point for these months may then be taken to indicate the prevalence of these winds, and consequently of cloudiness. [*e.g.* As I write, a mild "sirocco," or S.E. wind is blowing, temp. 69°·5, dew point 67°·8, and the sky is completely overcast]. The following table, drawn up from our record, shews that, during the last five years, the dew point for the autumn and winter months has been very notably higher than during the five years preceding.

MEAN DEW POINT.

	Five years (1887-91).	(1892-96).		Five years (1887-91).	(1892-96).
	°	°		°	°
January.....	45·4	45·0	October.....	60·4	62·8
February	45·1	47·7	November	53·6	55·3
September.....	65 3	66·0	December.....	48·8	49·1

As personal equation will not account for this remarkable rise in dew point, I think that this table shews that there was, in all probability, as much cloud in the sky as the observers estimated. Again, our record of wind direction is explicit as to the unusual prevalence of southerly winds (called here "Venti bassi") during the last, as contrasted with the preceding, five year period.

I am, yours sincerely,

J. F. DOBSON, S.J.

St. Ignatius' College, Malta, October 18th, 1897.

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, MAY, 1897.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Date.	Absolute. Minimum. Temp.	Date.	Average. Max.	Min.	Dew Point.	Humidity.	Absolute. Max. in Sun.	Min. on Grass.	TotalRain. Depth.	Days.	Aver. Cloud.
	°		°		°	°	°	0-100	°	°	inches		
England, London	78·0	18	33·9	13	63·7	43·2	41·1	67	124·7	27·1	1·08	9	4·8
Malta	79·3	30	50·1	17	70·7	58·0	55·1	76	150·9	45·5	1·41	8	5·3
Mauritius	82·5	20	57·4	21	78·5	66·7	61·6	71	127·6	49·1	·66	6	4·4
Calcutta	104·6	9	70·2	30	95·6	79·0	75·2	68	161·7	66·9	3·78	6	3·8
Bombay	93·3	28	77·8	2	90·7	80·7	76·3	74	146·7	70·7	·00	0	3·3
Ceylon, Colombo	92·2	5	75·0	26	89·7	79·7	75·6	80	143·0	73·0	8·30	19	6·8
Melbourne	70·9	12	33·5	21*c*	60·5	43·5	42·8	69	120·0	23·2	1·97	8	5·7
Adelaide	72·2	16	41·5	21	65·0	48·7	44·9	67	133·0	31·6	2·09	12	5·2
Sydney	...	...	...	...	...	...	...	..	...	...	...	...	...
Wellington	65·5	7	35·0	21*e*	60·4	47·8	44·8	70	114·0	23·0	1·97	11	4·1
Auckland	70·0	3	40·5	24	63·1	50·6	47·6	71	124·0	34·0	6·03	19	5·8
Jamaica, Kingston	90·4	8*a*	69·9	18	87·9	73·6	72·2	72	...	...	3·47	11	4·9
Trinidad	94·0	4*b*	68·0	4	91·0	72·0	71·9	74	173·0	66·0	5·58	14	...
Grenada	87·0	16	72·4	19*d*	84·7	74·8	70·6	75	148·0	...	5·88	25	2·0
Toronto	73·0	18	34·9	22	61·0	44·1	43·5	69	88·5	27·2	3·02	12	6·8
New Brunswick, Fredericton	74·3	14	28·5	9	61·1	40·3	40·6	69	...	...	6·54	18	7·2
Manitoba, Winnipeg	88·0	4	23·0	31	67·8	38·3	...	...	...	...	1·59	11	4·5
British Columbia, Esquimalt	83·4	28	39·2	2	63·1	45·2	46·7	81	...	...	·62	7	4·9

a—and 23. *b*—and 8, 11, 12, 13. *c*—and 22. *d*—and 26. *e*—and 30.

REMARKS.

MALTA.—Adopted mean temp. 62°·9, or 1°·2 below the average. Mean hourly velocity of wind 12 miles. Average sea temp. 66°·0. TSS on 4th and 24th; L on 28th; H on 24th. Slight earthquake shocks on 27th. J. F. DOBSON.

Mauritius.—Mean temp. of air 0°·8, of dew point 2°·6, and rainfall 3·62 in., below their respective averages. Mean hourly velocity of wind 11·7 miles, or 1·5 above average; extremes, 28·1 on 29th, and 1·6 on 1st; prevailing direction E.S.E. Rainfall the least in May since 1875, excepting 1880, when ·49 in. fell. T. F. CLAXTON.

CEYLON, COLOMBO.—Thunderstorms occurred on 5 days. L on the 27th. R. V. ALLEN.

Adelaide.—Mean temp. 0°·8 below, and rainfall ·80 in. below, the average of 40 years. The drought appears to be gradually breaking up, fair rains having fallen over a large portion of the colony. C. TODD, F.R.S.

Wellington.—Generally fine weather, with occasional showers and variable winds, up to the 26th; showery for the remainder of the month. Strong winds on five days from W. and N.W. L on 30th; S on hills on 30th and 31st; H on 30th. Temp. 2°·1 above, and rainfall 2·91 in. below, the average. R. B. GORE.

Auckland.—A wet and stormy month, the rainfall being 1·75 in. over the average, and the highest recorded in May since 1883. Mean temperature slightly under the average of 30 years. T. F. CHEESEMAN.

JAMAICA, KINGSTON.—Heaviest rainfall on 5th when 1·75 in. fell in 1 hr. 45 min., between 7 and 9 p.m. TSS from the middle to the close of the month. J. F. BRENNAN.

TRINIDAD.—Rainfall 1·93 in. above the average of 30 years. J. H. HART.

SUPPLEMENTARY TABLE OF RAINFALL, OCTOBER, 1897.

For the Counties, Latitudes, and Longitudes of most of these Stations, see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
I.	Uxbridge (Harefield Pk.)	·91	XI.	Rhayader, Nantgwillt ...	2·17
II.	Dorking, Abinger Hall .	·72	,,	Lake Vyrnwy	1·80
,,	Birchington, Thor	·28	,,	Corwen, Rhug	1·34
,,	Hailsham	·30	,,	Criccieth, Talarvor	1·26
,,	Ryde, Thornbrough	·44	,,	I. of Man, Douglas	2·32
,,	Emsworth, Redlands ...	·54	XII.	Stoneykirk, Ardwell Ho.	2·44
,,	Alton, Ashdell	·76	,,	New Galloway, Glenlee	3·80
III.	Oxford, Magdalen Col..	1·32	,,	Moniavie, Maxwelton Ho.	3·12
,,	Banbury, Bloxham	1·64	,,	Lilliesleaf, Riddell	1·80
,,	Northampton, Sedgebrook	1·41	XIII.	N. Esk Res. [Penicuick]	1·85
,,	Duddington [Stamford].	1·05	XIV.	Glasgow, Queen's Park..	1·71
,,	Alconbury	1·01	XV.	Inverary, Newtown	4·93
,,	Wisbech, Bank House...	1·12	,,	Oban, The Corran	...
IV.	Southend	·15	,,	Islay, Gruinart School...	1·73
,,	Harlow, Sheering..... ...	·77	XVI.	Dollar.....	1·45
,,	Colchester, Lexden	·48	,,	Balquhidder, Stronvar...	5·33
,,	Rendlesham Hall	·46	,,	Ballinluig	2·92
,,	Rushall Vicarage	·69	,,	Dalnaspidal H.R.S.....	5·06
,,	Swaffham	·99	XVII.	Keith H.R.S.....	1·59
V.	Salisbury, Alderbury ...	1·56	,,	Forres H.R.S.	1·00
,,	Bishop's Cannings	1·46	XVIII.	Fearn, Lower Pitkerrie..	1·73
,,	Blandford, Whatcombe .	1·44	,,	N. Uist, Loch Maddy ...	2·80
,,	Ashburton, Holne Vic...	2·33	,,	Invergarry	4·32
,,	Okehampton, Oaklands.	1·63	,,	Aviemore H.R.S.	1·50
,,	Hartland Abbey	1·39	,,	Loch Ness, Drumnadrochit	1·86
,,	Lynmouth, Glenthorne.	1·06	XIX.	Invershin	3·93
,,	Probus, Lamellyn	1·69	,,	Scourie	...
,,	Wellington, The Avenue	1·23	,,	Watten H.R.S.....	3·22
,,	Wincanton.....	1·53	XX.	Dunmanway, Coolkelure	7·91
VI.	Clifton, Pembroke Road	1·22	,,	Cork, Wellesley Terrace	4·84
,,	Ross, The Graig	1·84	,,	Killarney, Woodlawn ...	5·92
,,	Wem, Clive Vicarage ...	1·38	,,	Caher, Duneske	3·88
,,	Cheadle, The Heath Ho.	1·11	,,	Ballingarry, Hazelfort...	2·82
,,	Worcester, Diglis Lock	1·72	,,	Limerick, Kilcornan ...	2·04
,,	Coventry, Priory Row ..	1·81	,,	Broadford, Hurdlestown	...
VII.	Grantham, Stainby	·84	,,	Miltown Malbay	3·73
,,	Horncastle, Bucknall ...	·70	XXI.	Gorey, Courtown House	2·83
,,	Worksop, Hodsck Priory	·97	,,	Athlone, Twyford	2·76
VIII.	Neston, Hinderton	1·39	,,	Mullingar, Belvedere ...	2·87
,,	Southport, Hesketh Park	1·87	,,	Longford, Currygrane...	2·97
,,	Broughton-in-Furness ...	3·57	XXII.	Woodlawn	2·97
IX.	Ripon, Mickley.....	1·72	,,	Crossmolina, Enniscoe ..	3·67
,,	Melmerby, Baldersby ...	2·09	,,	Collooney, Markree Obs.	2·56
,,	Scarborough, Observat'y	1·64	,,	Ballinamore, Lawderdale	3·13
,,	Middleton, Mickleton ...	1·80	XXIII.	Warrenpoint.....	2·60
X.	Haltwhistle, Unthank...	1·72	,,	Seaforde.....	3·25
,,	Bamburgh	1·32	,,	Belfast, Springfield	2·18
,,	Keswick, The Bank.....	4·34	,,	Bushmills, Dundarave..	2·24
XI.	Llanfrechfa Grange	1·72	,,	Stewartstown	3·50
,,	Llandovery	2·18	,,	Killybegs	3·07
,,	Castle Malgwyn	3·06	,,	Lough Swilly, Carrablagh	2·68
,,	Builth, Abergwesyn Vic.	2·78			

OCTOBER, 1897.

Div.		STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL. Total Fall.	Difference from average 1880-9.	Greatest Fall in 24 hours. Dpth	Greatest Fall in 24 hours. Date	Days on which ·01 or more fell.	TEMPERATURE. Max. Deg.	Max. Date	Min. Deg.	Min. Date.	No. of Nights below 32°. In shade.	No. of Nights below 32°. On grass.
			inches.	inches.	in.								
I.	ENGLAND.	London (Camden Square) ...	·56	— 2·33	·14	18	9	67·2	17	31·9	7	1	7
II.		Tenterden	·24	— 3·79	·09	2,18	7	66·0	19	33·5	8	0	4
,,		Strathfieldsaye	·11	...	·04	25	5	...	...	...	...	...	...
III.		Hitchin	·62	— 2·45	·19	18	13	65·0	17	30·0	6	3	...
,,		Winslow (Addington)	1·24	— 1·85	·41	18	9	66·0	17*b*	28·0	6	3	6
IV.		Bury St. Edmunds (Westley)	·85	— 2·42	·39	2	8	63·0	17	37·0	...	0	...
,,		Norwich (Brundall)	·94	...	·29	19	15	66·6	17	32·4	7	0	6
V.		Weymouth(LangtonHerring)	...	...	...	...	...	...	...	...	...	...	...
,,		Torquay (Cary Green)	·94	...	·50	15	8	62·9	2	40·3	7	0	0
,,		Polapit Tamar [Launceston]..	1·50	— 3·43	·56	14	14	66·2	19	30·3	7	2	3
VI.		Stroud (Upfield)	1·56	— 1·47	·55	15	11	64·0	1, 17	37·0	6*f*	0	...
,,		ChurchStretton(Woolstaston)	1·10	— 2·67	·55	15	10	63·5	18	38·0	12*g*	0	0
,,		Tenbury (Orleton)	...	...	...	...	...	...	..	...	...	...	...
VII.		Leicester (Rotherby Hall) ...	1·36	...	·53	15	21	72·0	30	25·0	6	5	23
,,		Boston	·91	— 2·20	·33	2	12	64·0	17	32·0	26	1	...
,,		Hesley Hall [Tickhill].....	·99	— 2·11	·28	2	12	67·0	17	32·0	6, 26	1	...
VIII.		Manchester(PlymouthGrove)	1·76	— 1·61	·55	14	7	66·0	29	34·0	11	0	1
IX.		Wetherby (Ribston Hall) ...	1·57	— 1·56	·62	14	6	...	...	...	...	...	...
,,		Skipton (Arncliffe)	2·97	— 3·06	·90	14	11	...	...	...	...	...	...
,,		Hull (Pearson Park).	1·37	— 2·28	·43	2	7	65·0	17	30·0	13*h*	2	7
X.		Newcastle (Town Moor)	1·22	— 1·90	·53	14	5	...	...	...	...	...	...
,,		Borrowdale (Seathwaite).....	8·72	— 1·87	1·64	16	15	...	...	...	...	...	...
XI.	WALES.	Cardiff (Ely).....	1·91	— 2·63	·39	14	12	...	...	...	...	...	...
,,		Haverfordwest	1·96	— 3·19	·71	14	16	62·9	17	32·8	13	0	7
,,		Aberystwith (Gogerddan) ...	1·81	— 3·54	·60	2	10	68·0	28	26·0	23	8	...
,,		Llandudno.....	1·46	— 1·93	·54	2	15	66·0	17	42·0	13	0	...
XII.		Cargen [Dumfries]	2·88	— ·38	·76	14*a*	8	64·0	22	26·0	14	2	...
XIII.		Edinburgh (Blacket Place)...	1·27	...	·48	14	10	64·5	17	29·7	14	2	4
XIV.		Colmonell	2·60	...	·52	16	12	70·0	6	27·0	13	...	...
XV.		Lochgilphead (Kilmory).....	3·98	— ·81	·74	16	15	...	...	25·0	13	2	...
,,		Mull (Quinish).....	3·59	— 1·70	·58	17	15	...	...	...	...	...	...
XVI.		Loch Leven Sluices	1·70	— 1·26	·70	16	7	...	...	...	...	...	...
,,		Dundee (Eastern Necropolis)	2·20	— ·04	1·05	15	14	61·0	3	29·7	14	2	...
XVII.		Braemar	2·74	— ·87	·90	17	15	64·2	22	24·0	26	8	20
,,		Aberdeen (Cranford)	2·58	...	1·44	16	17	64·0	21*c*	29·0	13	2	...
,,		Cawdor (Budgate)	1·13	— 1·60	·28	15	11	...	...	...	...	...	...
XVIII		Strathconan [Beauly]	4·23	— ·42	·96	15	8	...	...	...	...	...	...
,,		Glencarron Lodge.....	6·11	...	·91	10	18	65·0	27	29·6	14	1	...
XIX.		Dunrobin	3·14	— ·17	1·20	15	14	62·0	20	31·0	14	3	...
,,		S. Ronaldsay (Roeberry).....	3·03	— ·70	·48	15	17	57·0	21*d*	36·0	14	0	...
XX.		Darrynane Abbey.....	4·34	...	·93	13	20	...	...	...	...	...	...
,,		Waterford (Brook Lodge) ...	3·52	— ·30	·90	16	14	64·0	1	33·0	12	0	...
,,		O'Briensbridge (Ross)	3·70	...	·49	17	15	...	...	...	...	...	...
XXI.		Carlow (Browne's Hill)	3·01	— ·28	·79	14	13	...	...	...	...	...	...
,,		Dublin (FitzWilliam Square)	2·11	— 1·27	·64	14	14	62·9	17	36·1	12	0	0
XXII.		Ballinasloe	3·07	+ ·08	·74	16	19	59·0	17*e*	37·0	12	0	...
,,		Clifden (Kylemore)	4·95	...	1·44	16	13	...	...	...	...	...	...
XXIII		Waringstown	2·63	— ·08	·86	14	14	65·0	21	29·0	12	1	7
,,		Londonderry (Creggan Res.).	3·30	— ·37	1·03	15	16	...	...	...	...	...	...
,,		Omagh (Edenfel).....	3·43	+ ·33	1·05	14	15	61·0	20	32·0	12	1	3

+ Shows that the fall was above the average ; — that it was below it.

a—and 16. *b*—and 18, 30. *c*—and 22. *d*—and 28. *e*—and 20. *f*—and 7, 12. *g*—and 13. *h*—and 14.

METEOROLOGICAL NOTES ON OCTOBER, 1897.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; TS for Thunderstorm; R for Rain; H for Hail; S for Snow.

ENGLAND.

TENTERDEN.—By far the driest October recorded; 1879, with ·87 in., being the only other year out of 35 without an inch of R; 1890, with 1·21 in., was the last dry October. Ground remarkably dry, and ponds and wells very low. Mean temp. 5° higher than in 1896. Dews heavy, especially at the end of the month, but weather beautiful and like spring. Total sunshine 157 hours.

HITCHIN.—The driest October since 1878, and the second driest October in our record, which extends to 1849.

ADDINGTON.—A fine October; some days very fine, particularly the 30th, which was quite summer-like, bright and warm, while the 31st was foggy and cold, with a max. temp. 18° lower. Small rainfall, and little frost after that of the 6th, which cut off tender plants. Grand weather for the land; seed-corn got in in fine condition, and root crops well secured. Foggy on six days.

BURY ST. EDMUNDS, WESTLEY.—A very beautiful autumnal month, and the driest October since 1876. From the 14th very mild and summer-like, with foggy mornings and sunny days. Dense fog on 31st.

NORWICH, BRUNDALL.—The finest October for many years, and the driest since 1879. Rainfall 2·11 in. below the average. Mean bar. pressure 30·187 in. Mean temp. 50°·6. Dense fog on 19th. Wet fogs from 26th to 31st.

TORQUAY, CARY GREEN.—Rainfall 3·41 in. below the average. Total R of the ten months ·89 in. above the average. Mean temp. 54°·2, or 3°·1 above average. Duration of sunshine 97 hours 45 minutes, being 18 hours 35 minutes below the average. Ten sunless days.

POLAPIT TAMAR.—Uncommonly dry; the smallest rainfall for October during the past 17 years. Very calm generally throughout the month, and warm for the time of year. Prevalent winds easterly. Gale on 17th. Thick fog at night on 19th.

WOOLSTASTON.—A beautiful, bright, sunny, autumn month, with no frost and but little rain, except on the 15th, when it fell heavily. Mean temp. 50°·3.

ROTHERBY HALL.—The driest October since 1888, when only ·51 in. fell, the R being 1·70 in. below, or considerably less than half, the average of ten years. Although R fell in small quantities on 21 days, there were mild, bright intervals, and the autumnal tints have been more beautiful than usual. The ground was so hard that the customary first meet of the Quorn hunt (Nov. 1st) had to be postponed. Mean temp. 49°·0.

MANCHESTER, PLYMOUTH GROVE.—The rainfall of the month is the smallest in October for 31 years, with the one exception of October, 1888, when the rainfall was the same. Dense fog on 1st. T and L on the 10th. Fine autumn weather from the 16th to the end of the month, and very mild for the season.

ARNCLIFFE.—A very dry month, with little frost.

HULL, PEARSON PARK.—Fogs on 7 days, and all day on 30th.

WALES.

HAVERFORDWEST.—Since October, 1850 and 1879, there have been no very dry Octobers; in the first-mentioned year the fall was 2·09 in., and in the second 2·27 in.; thus it will be seen that October, 1897, had the least R of the series commencing 1849. Although the rainfall was small, there was a great deal of broken weather, and it was very wet from the 13th to 19th, with moderate gales from 15th to 17th. The last week was fine, with bright days and hoar frost on some nights. The month generally was mild, and the shade temp. did not fall below 32°. Fog on 7th, 19th, 20th and 28th.

ABERYSTWITH, GOGERDDAN.—Beautiful weather throughout the month, bright, and some days very hot. The finest October remembered.

SCOTLAND.

CARGEN [DUMFRIES].—The month was characterised by very marked deviations from the means of 38 years; the bar. pressure being greater by ·269 in., the temp. higher by 1°·6, than the averages; while there was 1·61 in. less R and 44 hours more sunshine. The mean reading of the bar. for the month has only once been exceeded, in October 1879. Temp. has been higher and R less in 6 years since 1860, while only in 1870 and 1872 has more sunshine been recorded. The 14th was remarkably cold, the temp. not rising above 42°, and falling as low as 26°; on the 15th the mean temp. was 47°·5, and continued to rise until it reached 57°·6, on the 17th; for the seven days 16th to 22nd inclusive, the mean was 53°·1. 2·42 in. of R fell in the four days 14th to 17th, but no R fell after the 17th. Light easterly winds were prevalent. L on 23rd, and T on 29th.

EDINBURGH, BLACKET PLACE.—Mean pressure 30·106 in., the highest in October since 1866. Mean temp. 2°·0 above the average. Fog on 6 days, the greatest number in October since 1827, with six fogs, but in 1786 seven fogs were recorded. S.W. gale on 16th and 17th.

COLMONELL.—Rain 2·33 in. below, and mean temp. 4°·6 above, the average of 21 years.

MULL, QUINISH.—Wet and stormy till the 18th, then high temp. and constant sunshine. Laburnums in flower on 23rd, and ripe raspberries picked on 28th.

BRAEMAR.—Changeable and disagreeable to the 18th, but from thence finer weather could not be desired.

ABERDEEN, CRANFORD.—Warm for October, the min. temp. being above 50° on several nights.

S. RONALDSAY, ROEBERRY.—The first half of the month was wet, the second half very fine. Mean temp. 48°·5, or 2·5 above the average of 7 years.

IRELAND.

DARRYNANE ABBEY.—A fairly dry month, except from 11th to 18th inclusive, when 3·03 in. of R fell, 2·70 in. of which was on 13th, 14th, 15th and 16th. Nearly all the fall of ·83 in. on the 16th was after 6.30 p.m. L and a heavy peal of T on 15th.

WATERFORD, BROOK LODGE.—A very mild month, although there was a good deal of easterly wind. T and L between 10 and 11 p.m. on 15th.

O'BRIENSBRIDGE, ROSS.—Perfect weather from 17th to 28th; the days bright, warm and calm, and the nights fine, but chilly.

DUBLIN, FITZWILLIAM SQUARE.—Quite unlike the cold Octobers of 1894, 1895 and 1896, this month was strangely genial and fine; the temp. of the air actually rose towards the close, thus reversing the seasonal change for the time of year. The weather of the second week was, indeed, rough and wet; but this only accentuated the quietness and mildness of the beginning and end of the month. The mean temp., 52°·3, is 2°·6 above the average. The temp. in screen did not fall to 36°, or on the grass to 32°. L was seen on the 15th. High winds occurred on 9 days, attaining the force of a gale on 10th, 16th and 17th. Fog on 9 days; H on 10th; lunar halo on 7th; solar halo on 28th.

WARINGSTOWN.—A very fine month, with only a week's rain in the middle. Unusually warm; sub-tropical plants in sheltered situations being still uninjured at the end.

EDENFEL.—With the exception of the second week, when rains of a torrential character fell on three days, the month was one of the most remarkable Octobers on record, not only from the absence of R at other times, but from the frequently clear, and always calm and mild, atmosphere prevailing throughout.